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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,253	07/23/2003	Marc Schaepekens	RD-28,667-3	1023

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General Electric Company
CRD Patent Docket Rm 4A59
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Schenectady, NY 12301

EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT PAPER NUMBER

1763

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,253

Applicant(s)

SCHAEPKENS, MARC

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0703.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

A portion of the information disclosure statement filed 7/23/03 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

If applicant wishes consideration of the references listed in the PTO-892 in the parent case, the references should be listed in the form of a PTO-1449 with ample room for the examiner to sign and initial each reference. A simple copy of the PTO-892 from the parent case will not be considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 32, 35-36, 38, 40-41 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang, U.S. Patent 6,383,953.

Hwang shows the invention as claimed including a method of depositing a uniform coating on a planar surface of a substrate 306, the method comprising the steps

of: providing the substrate having the planar surface to a deposition chamber 302; evacuating the deposition chamber to a predetermined deposition pressure; generating a plurality of plasmas from at least one array of a plurality of plasma sources 200; injecting at least one reactant gas (plasma gas in fig. 3) into each of the plurality of plasmas through at least one common reactant gas injector 308 such that a flow rate of the at least one reactant gas into a first plasma is substantially equal to a second flow rate of the at least one reactant gas into a second plasma; flowing the at least one reactant gas and the plurality of plasmas into the deposition chamber toward the substrate ; and reacting the at least one reactant gas with the plurality of plasmas to form the coating on the planar surface of the substrate (see fig. 3 and its description).

With respect to claim 35, note from fig. 5 that the step of injecting a reactant gas into the plurality of plasmas comprises: supplying the at least one reactant gas from a reactant gas source to the at least one common reactant gas injector 312; passing the at least one reactant gas through a first plurality of orifices in the common reactant gas injector proximate to the first plasma 314 and a second plurality of orifices proximate to the second plasma; directing the at least one reactant gas through the first plurality of orifices into the first plasma at a first flow rate; and directing the at least one reactant gas through the second plurality of orifices into the second plasma at a second flow rate, the first flow rate being substantially equal to the second flow rate.

Concerning claims 36 and 38, note from fig. 5 that the first predetermined number of orifices and the second predetermined number of orifices are substantially equal to each other as are the conductances.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang, U.S. Patent 6,383,953 in view of Knowles et al., U.S. Patent 5,560,779.

Hwang is applied as above but does not expressly disclose wherein the at least one of the plurality of plasma sources is an expanding thermal plasma source having a cathode, an anode, and an inlet for a non-reactive plasma source gas disposed in a plasma chamber. Knowles et al. discloses a plasma source comprising an expanding thermal plasma source having a cathode 16, an anode 42, and an inlet 44 for a non-reactive plasma source gas (see fig. 2 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Hwang so as to include the expanding thermal plasma source of Knowles et al. because such a process will result in the formation of a high quality film. Additionally, note that such limitation is directed to an apparatus limitation and apparatus limitations may have little weight in process claims.

Regarding the pressures in the deposition chamber and the plasma chamber, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine through routine experimentation the optimum pressures of the deposition and plasma chambers based upon a variety of factors including the desired

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mean free path of the gases used, and such limitations would not lend patentability to the instant invention absent the showing of unexpected results.

Claims 37, 39, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang, U.S. Patent 6,383,953.


Hwang is applied as above but does not expressly disclose the first and second plurality of orifices containing different numbers of orifices and different conductances. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine through routine experimentation the optimum number of orifices and conductance of the plurality of orifices based upon a variety of factors including the desired flow rate or distribution of the gas into the deposition chamber and such limitation would not lend patentability to the instant application absent a showing of unexpected results.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Luz L. Alejandro
Primary Examiner
Art Unit 1763

November 28, 2004